

REMARKS

For reasons applicants will explain further below, claim 1 has been amended to remove the "at least twice a day..." requirement previously added in the preliminary amendment mailed October 10, 2001.

New claim 54 depends from claim 1 and states that the inhibitor is not AZT. Excluding AZT using a "hole in the claim" format is acceptable in view of, for example, In re Johnson, 558 F.2d 1008, 1017-19 (C.C.P.A. 1977). New claim 53 depends from claim 1 and expands the hole to "nucleoside analogues", a class of compounds to which AZT and other species described in the application belong.

New claim 55 is the same as claim 1 except that claim 55 requires that the composition is non-depilatory. Support for claim 55 can be found in the specific examples of compositions, all of which are non-depilatory, and on page 7, lines 1-4 of the application, where applicants explain that the composition can be used as an adjunct to other methods of hair removal, such as chemical depilation.

Claims 1, 6, and 33-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Styczynski, U.S. Pat. 6,020,006 ("Styczynski") in view of Black, WO 99/19466 ("Black"). Applicants assume that the Examiner meant to reject claim 7, which relates to using AZT, and not claim 6. The Examiner contends that it would have been obvious to combine the AZT mentioned by Black with the composition of Styczynski and to use the resulting composition according to the regimen disclosed by Styczynski.

Applicants previously represented that Black teaches using AZT as a depilatory agent. Applicants have reevaluated Black and concluded that this is incorrect.

Black discloses that nucleic acids and vectors encoding thymidine kinase mutants, guanylate kinase enzymes, and related fusion proteins can be used to treat a wide variety of conditions. See the discussion under the Summary of the Invention section beginning on page 3 of Black. The conditions are discussed beginning on page 32 of Black. AZT is mentioned during the discussion and applicants have quoted the relevant paragraph below:

Within one aspect of the invention, methods are provided for inhibiting a tumor or cancer in a warm-blooded animal, comprising administering to the warm-blooded animal one of the vectors described above (or nucleic acid molecules which encode thymidine kinase mutants, guanylate kinase enzymes, or fusion proteins of

the present invention), such that the tumor or cancer is inhibited. Within one embodiment, selected cells may be removed from a warm-blooded animal, one or more of the vectors described above introduced into the removed cells, and the cells reintroduced into the same or another warm-blooded animal. Within other embodiments, vectors or nucleic acid molecules which encode thymidine kinase (or mutants as described herein) or guanylate kinase or fusion protein may be separately administered or introduced. Within a further embodiment, such methods further comprise the step of administering a nucleoside analogue. Representative examples of such nucleoside analogues include ganciclovir, acyclovir, trifluorothymidine, 1-[2-deoxy, 2-fluoro, beta-D-arabino furanosyl]-5-iodouracil, ara-A, araT1 -beta-D-arabinofuranoxyl thymine, 5-ethyl-2'deoxyuridine, 5-iodo-5'-amino-2,5'-dideoxyuridine, idoxuridine, AZT, AIU (5-iodo-5' amino 2', 5'-dideoxyuridine), dideoxycytidine and AraC. Briefly, utilizing such methods, a wide variety of tumors (both benign and malignant) may be treated. Representative examples of such tumors include solid tumors such as lung carcinomas, renal cell carcinomas, breast carcinomas, colorectal carcinomas and melanomas, as well as diffuse cancers such a leukemias and lymphomas.

The first sentence in the above-quoted paragraph states that "one aspect" of the invention includes administering nucleic acids and vectors encoding thymidine kinase mutants, guanylate kinase enzymes, and fusion proteins to treat tumors or cancer. The second and third sentences provide two different approaches for the administration of the nucleic acids and vectors. The fourth sentence then states "Within a further embodiment, such methods further comprise the step of administering a nucleoside analogue"; note that this step is in addition to administering the nucleic acid or vector. The following (fifth) sentence lists examples of nucleoside analogues, among them AZT, that can be used along with the nucleic acid or vector to treat cancer; these nucleic acid analogues are known and apparently have anti-cancer properties. The final sentences in the paragraph provide examples of the types of cancers that can be treated.

Black does not mention treating conditions other than cancer in the above-quoted paragraph. Instead, the subsequent paragraph lists other conditions:

Within other aspects of the present invention, methods are provided for treating a variety of diseases wherein a subset of cells may be characterized as "diseased" or altered, utilizing the above-described nucleic acid molecules or vectors. Representative examples of such diseases include hyperkeratosis (psoriasis), prostate hypertrophy, hyperthyroidism, a wide variety of endocrinopathies, autoimmune diseases (due to autoimmune reactive cells such as certain subsets of T cells), allergies (e.g., by modulating the activity of IgE expressing cells responsible for an allergic response), restenosis (e.g., by killing cells which are responsible for the ingrowth and/or clogging of a blood vessel), a wide array of

viral diseases such as AIDS (HIV), hepatitis (HCV or HBV), and intracellular parasitic diseases. Within other embodiments of the invention, methods are provided for inhibiting the growth of or destroying cells which are not traditionally associated with a disease. For example, within certain embodiments it may be desirable to administer a vector (or nucleic acid molecule alone) which inhibits or destroys fat cells in order to initiate weight loss in an animal, or to destroy hair follicles (as a depilatory reagent).

This paragraph begins with the statement "Within other aspects of the present invention methods are provided for treating a variety of diseases... utilizing the above-described nucleic acid molecules or vectors." The diseases and conditions are listed subsequently and include viral diseases, endocrine diseases, autoimmune diseases, allergies, obesity, and unwanted hair. The nucleic acid molecules and vectors used in the methods are those encoding glucose kinase mutants, guanylate kinase enzymes, and related fusion proteins. Black does not teach that the nucleoside analogues such as AZT should also be used to treat conditions such as allergies, obesity, and unwanted hair discussed in this paragraph. For example, Black does not state the treatment of unwanted hair can include the additional step of administering nucleoside analogues such as AZT.

Black thus does not disclose or suggest using AZT as a depilatory to destroy unwanted hair. At most, Black teaches that nucleic acids and vectors encoding thymidine kinase mutants, guanylate kinase enzymes, and related fusion proteins can be used as depilatories. But even this teaching is tenuous, since Black also states that the nucleic acids and vectors can be used to treat an infinite number of diseases and conditions.

Styczynski describes using a composition including a compound (an inhibitor of alkaline phosphatase) that interferes with hair growth to reduce the growth of unwanted hair. Neither Styczynski or Black, alone or in combination, suggests adding AZT to the composition, for a number of reasons.

Firstly, as just discussed, Black does not suggest that AZT should be used as a depilatory. Instead, at most Black suggests using nucleic acids and vectors encoding thymidine kinase mutants, guanylate kinase enzymes, and related fusion proteins as depilatories. AZT and other anti-cancer nucleoside analogues are mentioned in a different paragraph and are used along with Black's nucleic acids and vectors to treat tumors, not unwanted hair.

Secondly, Black does not even provide a reasonable expectation that nucleic acids and vectors encoding thymidine kinase mutants, guanylate kinase enzymes, and related fusion proteins actually will work as depilatories. Black lists an infinite number of diseases and conditions that can be treated with his nucleic acids and vectors. A person of ordinary skill in the art would not expect that the nucleic acids and vectors would actually work to treat all or even most of the listed conditions. If taken at face value, Black's nucleic acids and vectors are wonder drugs. A person of ordinary skill in the art understandably would not give much credibility to these broad statements.

Finally, Styczynski and Black mention two fundamentally different approaches for dealing with unwanted hair. Styczynski describes a composition using a compound that interferes with the biological mechanism of hair growth. Over time, after repeated application of the composition, hair growth is reduced because the hair does not grow as quickly. In contrast, depilatories destroy hair. A person of ordinary skill in the art generally would not be motivated to combine the nucleic acids and vectors from Black with the composition in Styczynski because depilatories work differently from compounds that interfere with the biological mechanism of hair growth.

Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of claims 1, 6, and 33-38 based on Styczynski and Black be withdrawn. Moreover, the 35 U.S.C. § 103(a) rejections of the remaining dependent claims based on Styczynski, Black, and other references should be withdrawn for at least the same reasons.

Applicants respectfully submit that the claims are in condition for allowance and such action is requested.

Enclosed is a \$50.00 check for excess claim fees and a \$120.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Applicant : Peter Styczynski et al.
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Respectfully submitted,

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Robert C. Nabinger
Reg. No. 33,431

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

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